

In the claims:

1. (currently amended) An apparatus for improving the acoustic impedance for a loudspeaker comprising:

~~An a first enclosure with six outer walls and six inner walls connected to form define a first box structure, surfaces of three of said inner the walls being one of three a first wave-guides forming a closed loop embedded acoustic transmission line;~~

~~a second enclosure disposed within said first enclosure, the second enclosure having at least three walls attached to a front wall of the first enclosure to define a second box structure with an enclosed compartment between the first box structure and the second box structure, surfaces of using one of the walls of said first enclosure to complete its structure while the other three of the walls also form of the second enclosure being a second wave-guides constructing an embedded acoustic transmission line;~~

~~a termination member affixed at the ends of said transmission line to seal and form the first and second wave-guides having a surface being a third of the wave-guides constructing an embedded acoustic transmission line;~~

~~at least one an aperture located in a at least one interior wall of said the second enclosure of a proportional diameter or area creating a throat/mouth defining a single opening into the enclosed compartment to said embedded acoustic transmission line;~~

~~an alternative density transmission medium affixed to covering a majority of at least one of said wave-guides covering a majority of its surface;~~

~~at least one opening in the front wall common to the first enclosure and the second enclosure, both structures hereinafter called a baffle board, to mount a bi-directional loudspeaker; and~~

~~a bi-directional loudspeaker mounted on the baffle board;~~

~~wherein;~~

~~the first, second and third wave-guide comprise an embedded acoustic transmission line; and~~

~~the interaction of a sound wave with the alternative density transmission medium reflected through the aperture improves the acoustic impedance of the apparatus.~~

2. (previously amended) Apparatus, as claimed in claim 1 wherein said interior enclosure is equipped with tuning means to accentuate the low frequencies of the speaker, comprising:

a port means extending through said baffle board.

3. (currently amended) Apparatus, as claimed in claim 1 wherein an acoustic low pass filter is connected in front of the loudspeaker to produce low frequencies only, comprising:

A a second enclosure placed in front of said loudspeaker to provide air mass for acoustic low pass function;

a tubular or shelf port means to launch a particular range of low frequencies from said air mass.

4. (previously amended) Apparatus, as claimed in claim 1 further comprising:

a horn type expansion diaphragm means coupled to the louspeaker in front of the embedded acoustic transmission line to increase throw or coverage.

5. (previously amended) Apparatus, as claimed in claim 1 wherein said loudspeaker is of the planar type of flat panel driver that produces sound waves bi-directionally, comprising:

an electrostatic type sound panel for any frequency range.

6. (previously amended) Apparatus, as claimed in claim 1 wherein said loudspeaker is front mounted directly over and facing said aperture and sealing said embedded acoustic transmission line with said loudspeaker, comprising:

a first and second wave-guide disposed directly in front of and around said loudspeaker mounted at right angles with said center aperture in said second wave-guide and in a radial relationship with said second wave-guide so as to create a channel expanding from the center in a radial manner;

a termination member disposed at the opposite end of the pair of wave-guides disposed to block a wave in the embedded acoustic transmission line to cause a reversal of said wave;

an alternate density transmission medium affixed to at least one wall of one of said wave-guides; and

a driver of the loudspeaker mounted at said mouth of said embedded acoustic transmission line.

7. (previously amended) Apparatus, as claimed in claim 6, further comprising:

a compression plug mounted directly in front of said driver to guide said wave and increase pressure on said driver to maintain a pressure differential with atmosphere.

8. (previously amended) Apparatus, as claimed in claim 6 wherein the reverse side of the driver is coupled to a acoustic low pass filter to produce low frequencies only;

the acoustic low pass filter comprising an enclosure and a port tube.

9. (previously amended) Apparatus, as claimed in claim 6 wherein the acoustic embedded transmission line comprises multiple embedded acoustic transmission lines each for a different frequency range to optimize the operation in each range while independent or housed in a common larger enclosure used for the lowest frequencies; and

further comprising multiple dynamic transducers each of a different diameter appropriate for that frequency range.

10. (previously amended) Apparatus, as claimed in claim 6 wherein the alternate density transmission medium includes open cell urethane foam.

11. (previously presented) The apparatus of claim 1, further comprising:

a port means extending from an interior cabinet through a wall of the enclosure.

12. (previously presented) The apparatus of claim 1, further comprising:

a passive diaphragm mounted on the baffle board.

13. (previously presented) The apparatus of claim 1, further comprising:
an acoustic low pass filter attached to the reverse side of the driver to produce low frequencies.

14. (currently amended) A speaker system, comprising:

a first cabinet;

a second cabinet having a common front wall with the first cabinet and having at least three walls attached to walls of the first cabinet to define an enclosed compartment between the first cabinet and the second cabinet, the enclosed compartment having no vent or port to the external environment;

an aperture between the first cabinet and the second cabinet; and

an alternative density transmission medium in the enclosed compartment and attached to an inner- a wall of the second cabinet and/or the first cabinet;

wherein a sound wave passes through the aperture into the enclosed compartment, interacts with the alternative density transmission medium and is reflected back through the aperture to improves the acoustic impedance of the speaker enclosure system.

15. (previously presented) The speaker system of claim 14, further comprising:

a bi-directional loudspeaker mounted to the common front wall.

16. (previously presented) The speaker system of claim 14, wherein the alternative density transmission medium includes open cell foam.

17. (currently amended) A method of moderating a bias pressure caused by a reflected sound wave in a speaker enclosure, the method comprising:

producing a sound wave with a speaker in a first chamber;

directing the sound wave through an aperture from a first chamber to a second chamber of the speaker enclosure, the second chamber being sealed except for the aperture;

compressing a foam material in the second chamber with the directed sound wave, the amount of compression varying according to the frequency and the intensity of the sound wave; and

reflecting the sound wave ~~through the aperture from the second chamber to~~ back into the first chamber to moderate the bias pressure in the speaker enclosure.

18. (cancelled) The method of claim 17, further comprising:

producing the sound wave in the first chamber.

19. (new) The apparatus of claim 1, wherein one of the walls of the first enclosure comprises a flat back wall.

20. (new) The apparatus of claim 14, a wall of the first cabinet comprises a flat back wall with a planar surface.